



## **2006 Report Off-Center Evaluation Planting of Woody Plant Materials Grand Rapids, Minnesota**

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### **INTRODUCTION**

The Plant Materials Center (PMC), located at Bismarck, North Dakota, was established in 1954 as part of the U. S. Department of Agriculture's Soil Conservation Service, now the Natural Resources Conservation Service (NRCS). The Bismarck PMC serves the States of Minnesota, North Dakota, and South Dakota. Tree and shrub improvement has always been an integral part of the plant materials program in Minnesota. There is a need to evaluate how different trees and shrubs will perform in diverse soil and climatic conditions. The PMC currently has tree and shrub evaluation sites at eight locations in the three-state area, including three sites in Minnesota.

A long-term agreement, effective through June 13, 2011, has been developed with the USDA Natural Resources Conservation Service (NRCS); the University of Minnesota, North Central Research and Outreach Center at Grand Rapids, Minnesota; the Itasca Soil and Water Conservation District (SWCD); and the Iron Range Resource and Rehabilitation Board, Mineland Reclamation Division, Chisholm, Minnesota. The Major Land Resource Area is 88, Northern Minnesota Glacial Lakes Basins. Soils are Morph and Rosy very fine sandy loams with seasonal high water tables from 1-5 feet. Long-term average rainfall is 28.78 inches. The site is directly across Highway 169 south of the Research and Outreach Center. An earlier site had been established north of the research facility but proved to be too wet. The first trees and shrubs were planted at the new site beginning in 1996. Several entries were moved with a tree spade (noted in the Technical Report) from the old site to the new site. The site is maintained with cultivation and herbicides. Quackgrass and reed canarygrass are the main perennial weeds. Poor performing entries are removed and replaced as needed. Pruning and removal of contaminant species such as boxelder is done on a routine basis. New entries planted each year are flagged for hand weeding. Measurements and notes are taken at the end of each growing season.

## **OBJECTIVES**

1. Conduct evaluation studies to determine the adaptation and performance of woody plant materials for conservation purposes.
2. Conduct advanced evaluation and progeny testing of selected strains of woody plant materials.
3. Establish seed and plant increase of selected accessions.
4. Develop and release improved plant materials for public use.

## **ACTIVITIES IN 2006**

Approximately 80 accessions of 65 different species are currently being evaluated. Five plants each of four new entries were planted on May 16, 2006. Planted in Block II Shrubs was highbush cranberry (*Viburnum opulus* var. *americanum*), and a recent silky willow (*Salix sericea*) release (Riverbend germplasm) from the Rose Lake, Michigan PMC. Planted in Block IV Tall Trees was a Minnesota source of swamp white oak (*Quercus bicolor*), from Lincoln-Oakes Nurseries; and a northern catalpa (*Catalpa speciosa*) from Big Sioux Nursery. All plants were bareroot seedlings, except for the silky willow which were potted stock. Potted stock was used to replace two missing arrowwood (*Viburnum dentatum*) plants, and one missing roundleaf hawthorn (*Crataegus chrysocarpa*).

NRCS field and area office staff helped collect data on selected entries on September 15, 2006. Measurements and notes were taken on crown spread and plant height; disease and insect damage; drought and cold tolerance; fruit production; survival; vigor; and animal damage. All of the new entries had survived except one of the silky willow plants. Newer entries that are performing well include common juniper, black chokeberry from Bailey Nurseries, bittersweet, and 'Freedom' honeysuckle. Data was collected on 21 accession/entries in 2006.

Maintenance items completed by the NRCS field office staff on September 21, 2006, included removal of both European white birch entries (disease and insect problems); cutting back of 'Silver Sands' sandbar willow to facilitate basal sprouting; removal of all but one of the common chokecherry due to black knot disease (applied Tordon as a stump treatment); pruned 'McDermid' Ussurian pear and 'Midwest' Manchurian crabapple to aid equipment access; and cut back the redleaf rose to encourage new growth.

Data is summarized annually and documented in the Bismarck PMC Annual Technical Report. Anyone who desires a copy of the latest data summary information can contact me at (701) 530-2075, or the NRCS field office at Grand Rapids (218) 326-6596. The report is 18 pages in length.

## NEW RELEASES

Data collected from this site was used to support the formal release of two new shrubs formally released in 2005 cooperatively with the Minnesota Agricultural Experiment Station. 'Silver Sands' sandbar willow and 'Survivor' false indigo were both planted in 1996. They both had good survival and excellent vigor and overall plant performance. Both species are subject to natural die-back, but generally re-sprout vigorously. A release brochure was completed in 2006 and is available on the Bismarck PMC homepage (<http://Plant-Materials.nrcs.usda.gov>) for these two new releases, or it can be ordered from the Bismarck PMC.



*'McDermid' Harbin pear has performed well at the Grand Rapids site. Trees were pruned in the fall of 2006 to aid access with equipment.*

## SUMMARY OF ACCOMPLISHMENTS

Selected accessions/cultivars that have performed well at the Grand Rapids site and show promise for additional testing and/or promotion for conservation use include the following:

<b>‘Cardan’ green ash</b>	<b>‘Oahe’ hackberry</b>
<b>‘Centennial’ cotoneaster</b>	<b>9076718 Scotch pine</b>
<b>‘McDermid’ Ussurian pear</b>	<b>9076719 Scotch pine</b>
<b>‘Indigo’ silky dogwood</b>	<b>9063158 Scotch pine</b>
<b>9069170 English oak</b>	<b>9063156 Scotch pine</b>
<b>‘Silver Sands’ sandbar willow</b>	<b>9047238 seaberry</b>
<b>9082667 gray birch</b>	<b>‘Survivor’ false indigo</b>
<b>9063115 green ash</b>	<b>‘Homestead’ Arnold hawthorn</b>
<b>9058847 black spruce</b>	<b>9063126 Japanese elm</b>
<b>‘Midwest’ Manchurian crabapple</b>	<b>9057412 bur oak</b>
<b>9030302 Norway spruce</b>	<b>323957 chokeberry</b>
<b>9006094 wafer ash</b>	<b>ND-2103 European cranberry</b>
<b>9005970 black walnut</b>	<b>9082631 Japanese birch</b>

Data from this planting has been used to document the cooperative release of the cultivars listed below. These cultivars are generally available from local conservation nurseries and are used in conservation plantings throughout the Northern Great Plains and Upper Midwest. Several more releases are anticipated in the near future. Information gathered concerning plant performance assists cooperating nurserymen and plant researchers in determining the range of adaptation of many other accessions/cultivars also included in the test planting.

### Formal Releases with Supporting Documentation from the Grand Rapids Site

<b>‘Regal’ Russian almond</b>	<b>1997</b>
<b>‘Legacy’ late lilac</b>	<b>1999</b>
<b>‘Silver Sands’ sandbar willow</b>	<b>2005</b>
<b>‘Survivor’ false indigo</b>	<b>2005</b>

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